

REMARKS

Claims 12, 18-21, 23-33, and 36-39 have each been amended to recite a C₂-C₂₀ alkenyl, a C₃-C₂₀ aryl, and a C₂-C₂₀ alkynyl. It is believed that one of ordinary skill in the art would understand that the groups "C₁-C₂₀ alkenyl," "C₁-C₂₀ aryl," and "C₁-C₂₀ alkynyl" each inherently includes therein the groups "C₂-C₂₀ alkenyl," "C₃-C₂₀ aryl," and "C₂-C₂₀ alkynyl," respectively.

Claim 15 appears to have been inadvertently truncated. Claim 15 has been amended to recite the rest of the claim. Support for this amendment can be found throughout the specification, for example, on page 22, lines 5-25.

In claim 21, the terms "wherein" and "and" were inadvertently transposed. Support for this amendment can be found throughout the specification, for example, on page 25, lines 14-23.

In claim 28, the third "wherein" has been corrected to "and." This appears to have been an inadvertent typographical error. Support for this amendment can be found through the specification, for example, on page 27, lines 11-20.

Claim 56 has been amended to depend from claim 1 instead of claim 2, which was cancelled. Claim 2 formerly depended from claim 1.

Claim 77 has been amended to define the R² group. Support for this amendment can be found throughout the specification, for example, on page 8, lines 8-10.

Claim 84 appears to have been inadvertently truncated. Claim 84 has been amended to recite the rest of the claim. Support for this amendment can be found throughout the specification, for example, on page 7, lines 19 to page 8, line 10.

No new matter has been added. Claims 1, 3-7 and 9-90 remain pending in the application.

References in the Search Report

Applicants submit herewith an Information Disclosure Statement, which includes the references cited in the Search Report of November 1999.

Objection of the Specification

The specification was objected to as failing to provide proper antecedent basis for the claimed subject matter. The Office Action asserts that the phrase "relative to the amount of substrate" in claims 9-11, and the term "i-Pr" in claim 86 do not have proper antecedent basis.

In claims 9-11, Applicants do not see the phrase "relative to the amount of substrate" in any of the noted claims. Applicants respectfully request clarification or withdrawal of the rejection.

Support for the abbreviation "i-Pr" can be found under the specification, for example, on page 11, lines 17-18.

Rejections of claims 12, 15, 18-39, 56, 77, 80, 84, 85 and 88 under 35 U.S.C. §112 ¶2

Claims 12, 15, 18-39, 56, 77, 80, 84, 85 and 88 were rejected under 35 U.S.C. §112 ¶2, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 12, 15, and 18-39 were rejected as being technically inaccurate in the expressions "C₁-C₂₀ alkenyl" "C₁-C₂₀ aryl" and "C₁-C₂₀ alkynyl" recited in the claims. The Office Action requests clarification of these terms. Applicants note that a "C₁ alkenyl" refers to a methenyl group (i.e., C=), and "C₁-alkynyl" refers to a methynyl group (i.e., C≡) (substituents omitted for clarity). Applicants also note that any of the above-mentioned groups can include non-carbon atoms (see, e.g., page 19, lines 13-22). Thus, Applicants believe that the claims are not technically inaccurate. However, Applicants have amended claims 12, 18-21, 23-33, and 36-39 to recite a C₂ alkenyl, a C₃ aryl, and a C₂ alkynyl, solely for the purpose of expediting the patent application process. It is believed that one of ordinary skill in the art would understand that the groups "C₁-C₂₀ alkenyl," "C₁-C₂₀ aryl," and "C₁-C₂₀ alkynyl" each inherently includes therein the groups "C₂-C₂₀ alkenyl," "C₃-C₂₀ aryl," and "C₂-C₂₀ alkynyl," respectively (i.e., as suggested by the Office Action). Thus, no new matter has been added. Applicants also reserve the right to pursue claims similar or identical to the rejected claims as pending prior to amendment herein in one or more continuation applications claiming priority to the instant application.

Additionally, claim 21 depends from claim 22, which was amended as discussed above, and claims 34 and 35 do not recite "alkenyl," "aryl," or "alkynyl" groups. Claim 15 has been amended to recite "C₂-C₂₀ alkenyl, C₃-C₂₀ aryl and C₂-C₂₀ alkynyl." However, Applicants believe the above discussion also applies to claim 15, and thus reserve the right to pursue claims similar or identical to the claim 15 prior to amendment herein.

Claim 56 was rejected in the Office Action as being improperly dependent on a cancelled claim. Applicants have amended claim 56 to depend from claim 1, which claim 2 formerly depended on.

The Office Action objects to claim 77 as being incomplete for not defining the variable R^2 . Applicants have amended claim 77 to define R^2 .

Claim 84 was rejected in the Office Action as being incomplete due to the lack of definition for the variables M , R^1 , and R^2 . Applicants have amended claim 84 to recite M , R^1 , and R^2 .

Claim 80 was rejected in the Office Action as being vague and indefinite by the expression "olefin group associated with the ring structure." Applicants note that the term "olefin group associated with ring structure" is defined in the specification, for example, on page 29, lines 10-12, and thus believe the claim to be definite.

Claims 85 and 88 were rejected as being of indeterminate scope in the expression "substituted derivatives thereof." Applicants believe that one of ordinary skill in the art would readily understand the scope of the expression "substituted derivatives thereof," and note that a preliminary search of the Patent Office website has revealed several hundred patents having claims that recite derivatives with specifications that do not explicitly recite such derivatives.

Thus, based on at least the above amendments and remarks, Applicants respectfully requested that the rejection of claims 12, 15, 18-39, 56, 77, 80, 84, 85 and 88 be withdrawn.

Rejection of claims 1, 3-7, 9-76 and 78-90 under Obviousness-Type Double Patenting

Claims 1, 3-7, 9-76 and 78-90 were rejected under the judicially-created doctrine of obviousness-type double patenting as being unpatenable over claims 1-70 of U.S. Patent No. 6,346,652 B1.

Without acceding to the correctness of this rejection, enclosed herewith is a Terminal Disclaimer with respect to U.S. Patent No. 6,346,652 B1 in compliance with 37 C.F.R. §1.321(c) to overcome this rejection. In view of this Terminal Disclaimer, claims 1, 3-7, 9-76 and 78-90 are believed to be allowable. Withdrawal of the rejection is therefore respectfully requested.

Rejection of claims 1, 3-7, 9, 10, 34, 56-58 and 61-65 under 35 U.S.C. §102(a)

Claims 1, 3-7, 9, 10, 34, 56-58 and 61-65 were rejected under 35 U.S.C. §102(a) as being anticipated by Fujimura, et al., "Asymmetric-Ring Closing Metathesis Catalyzed by Chiral Molybdenum Alkylidene Complexes," *J. Org. Chem.*, 1998, 63, 824-832 ("Fujimura"). The Office Action asserts that Fujimura discloses a method for ring-closing metathesis of olefin containing a plane of symmetry.

At the outset, Applicants note that Fujimura does not disclose, in Table 5 (noted in the Office Action), a ring-closing olefin metathesis reaction, involving a molecular substrate having a plane of symmetry, that forms a product free of a plane of symmetry. The substrate in Table 5 is not a symmetric triene, but is, in fact, a racemic mixture. See, e.g., Scheme 1 on page 824, where Fujimura discloses that two reactions are illustrated in the paper, one involving a racemic mixture, and the other involving a symmetric triene. Table 5 is described in Fujimura only with respect to the racemic mixture reaction.

Applicants also note that the reaction that includes symmetric trienes involve "large" catalyst amounts (i.e., 50 mol%), for example, as discussed on page 828, right column, first paragraph. Thus, it is believed that claim 1 is not anticipated by Fujimura, and withdrawal of the rejection of these claims is therefore respectfully requested. Dependent claims 3-7, 9, 10, 34, and 56-58 are believed to be allowable for at least the same reasons, and the withdrawal of the rejection of these claims is also respectfully requested.

Applicants further note that Fujimura discloses the use of a solvent in ring-closing metathesis reactions. For example, Fujimura discloses that benzene and toluene were used as solvents, for example, as discussed in the experimental section on page 832, right column, paragraph 2, or in Table 3 on page 828. Accordingly, Applicants believe that Fujimura does not disclose an olefin metathesis desymmetrization reaction occurring in the absence of a solvent, as recited in claim 61. Dependent claims 62-65 are believed to be allowable for at least the same reasons. Thus, the withdrawal of the rejection of claim 61-65 is respectfully requested.

Rejection of Claims 11-33, 40-55, 59-60, 67-77 under 35 U.S.C. §103(a)

Claims 11-33, 40-55, 59-60, and 67-77 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fujimura.

To summarize the following remarks, it appears that the Office Action is using hindsight, based on a reading of the Applicants' own specification, to provide the motivation or suggestion required for its §103(a) rejections, which is impermissible. The Office Action does not point to any motivation or suggestion in the prior art references in making the combinations or modifications that are asserted as being obvious.

The Office Action asserts that it would have been obvious to modify Fujimura "by utilizing substrate 6 of Table 2 because this substrate is chemically similar to those substrates disclosed by Fujimura." Applicants note that it appears the Office Action is referring to Table 2 of the instant specification rather than Table 2 of Fujimura, as the substrates in Table 2 of Fujimura are labeled 12a, 12b, and 12c. Applicants believe that the Office Action is relying on the Applicants' own disclosure (specifically, Table 2) to formulate its rejection. This appears to be a rejection based on hindsight, which is an impermissible ground upon which to formulate a rejection under §103(a). Thus, Applicants believe that this rejection is improper, and respectfully request that the rejection be withdrawn.

The Office Action also asserts that "one having ordinary skill in the art would be expected to adjust the conditions to obtain the desired product. Fujimura suggests that adjusting conditions will effect conversion." Initially, Applicants note that Table 1 in Fujimura refers to reactions involving racemic mixtures, not symmetric trienes (also see the above discussion with respect to Table 5 of Fujimura); thus, Applicants do not see the relevance of Table 1 in the rejection of the claims under §103(a). Furthermore (to the extent, if any, that Table 1 could be used in rejecting the instant claims, which Applicants do not concede), although Table 1 discloses a range of solvents, temperatures, and times, Applicants do not see where in Table 1 is it suggested or disclosed that the elimination of a solvent or the reduction of catalyst would be effective in any way. Applicants note that entry 1 requires benzene as a solvent, entry 2 requires THF, and entries 3-7 require toluene as a solvent (see p. 826, left column, first paragraph). Applicants thus believe that the Office Action is relying on the Applicants' own disclosure to formulate its rejection with respect to conversion, and respectfully request that the rejection on these grounds be withdrawn.

The Office Action also asserts that it would have been obvious to modify "the method disclosed by Fujimura by utilizing the claimed catalyst because they are chemically and structurally similar as those disclosed by Fujimura and therefore would be expected to be

effective in the disclosed process.” Applicants believe that this rejection, which also appears to be formulated based on the Applicants’ own disclosure with respect to catalyst structures, appears to be based on impermissible hindsight. Applicants do not see where in Fujimura is a motivation for modifying the catalysts (chemically or structurally) suggested or disclosed, to reach the instant processes. Thus, it is believed that this rejection is improper, and it is respectfully requested that the rejection under §103(a) on these grounds be withdrawn.

Finally, the Office Action also asserts that it would have been obvious “to have modified the method disclosed by Fujimura by utilizing the claimed amount of the catalyst because one so skilled would expectedly use the amount that results in the desired conversion level.” Applicants believe that this rejection is also based on impermissible hindsight, using the Applicants’ own disclosure with respect to the catalysts. Nowhere does Fujimura suggest or disclose that utilizing the claimed amount of catalyst (e.g., less than 15 mol%) would be effective in performing the reaction. To the contrary, Fujimura discloses “large” catalyst amounts, i.e., 50 mol% of catalyst. Thus, it is believed that this rejection is improper, and it is respectfully requested that the rejection under §103(a) on these grounds be withdrawn.

In summary, as it is believed that the Office Action has formulated the rejections of claims 11, 33, 40-55, 50-60, 67-77 based on impermissible hindsight using the Applicants’ own disclosure, it is therefore respectfully requested that the rejection of these claims under §103(a) be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,
Richard P. Schrock et al., Applicants

By: 

Tani Chen, Sc.D., Reg. No. 52,728
Timothy J. Oyer, Ph.D., Reg. No. 36,628
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, Massachusetts 02210-2211
Telephone: (617) 720-3500

Docket No. M0925.70069US00
Date: September 29, 2003
x09/27/03